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(71)出願人　000111672
ハリソン東芝ライティング株式会社
愛媛県今治市旭町５丁目２番地の１
(72)発明者　富田　保男
愛媛県今治市旭町５丁目２番地の１　ハリソン東芝ライティング株式会社内
(74)代理人　100083806
弁理士　三好　秀和　（外７名）

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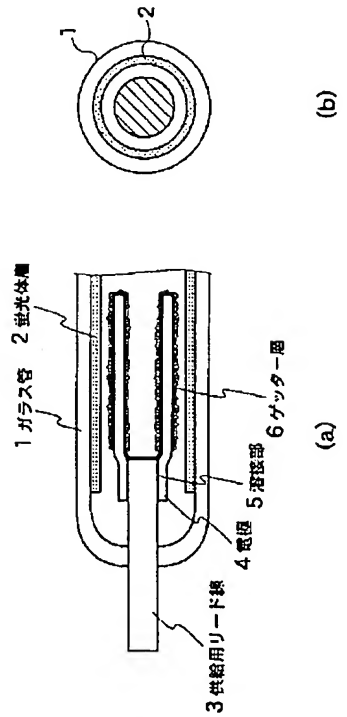
(54)【発明の名称】　冷陰極蛍光ランプ

(57)【要約】
【課題】　電極でのスパッタを抑えて冷陰極蛍光ランプの高輝度化、長寿命化を図る。
【解決手段】　略円筒のカップ形状の電極４の外表面および内表面にＺｒとＡｌの金属化合物からなるゲッター層６を圧着形成する。このような構成によって、ガラス管１内部の不純ガスがゲッター層６に吸着されるようにし、不純ガスが電極４に衝突することによって生じる金属物質の飛散を極力抑えるとともに、蛍光体層２に付着する不純ガスの量を低減するようにする。



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【特許請求の範囲】

【請求項1】　ガラス管の内壁に蛍光体層が形成され、前記ガラス管の内部に希ガスと水銀とが封入され、前記ガラス管の両端にリード線が気密に封着され、前記リード線の内端部それぞれに電極が接続された冷陰極蛍光ランプにおいて、

前記電極の表面にゲッター層を圧着形成したことを特徴とする冷陰極蛍光ランプ。

【請求項2】　前記電極は、略円筒のカップ形状であって、その外表面および内表面に前記ゲッター層を圧着形成したことを特徴とする請求項1記載の冷陰極蛍光ランプ。

【請求項3】　前記ゲッター層は、ジルコニウムとアルミニウムの金属化合物からなることを特徴とする請求項1又は2記載の冷陰極蛍光ランプ。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、細管型の冷陰極蛍光ランプに関し、特に輝度や寿命を向上させる技術に関する。

【0002】

【従来の技術】冷陰極蛍光ランプは、一般に、パーソナルコンピュータ、ワードプロセッサ、モニター等の液晶表示装置のバックライト光源として用いられるものである。近年の市場動向における液晶表示装置の薄型化、高輝度化、長寿命化に伴って、これに組み込まれる冷陰極蛍光ランプについてもより一層の細管化、高輝度化、長寿命化が望まれている。

【0003】図7（a）は、従来の冷陰極蛍光ランプの電極構成の軸方向断面図であり、同図（b）は径方向断面図である。直管型のガラス管1の内壁にはほぼ全長に渡って紫外線による刺激で発光する蛍光体層2が形成され、ガラス管1の内部には希ガスと水銀とが封入される。水銀は、冷陰極蛍光ランプの長寿命化を図るためのものである。

【0004】ガラス管1の両端には電流を供給する供給用リード線（導入線）3が軸方向に貫通して気密に封着される。その供給用リード線3の内端部は、略円筒のカップ形状の電極4に挿入され、その挿入部位（溶接部5）に溶接固定されて電極4と電気的に接続される。

【0005】供給用リード線3の内端部、電極4により冷陰極が構成される。この冷陰極蛍光ランプは、一対の冷陰極をそのカップ開口部が対向するようにガラス管1の両端内部に配置した構造である。

【0006】

【発明が解決しようとする課題】上記のように構成された冷陰極蛍光ランプでは、ランプ点灯過程において電極4がスパッタされると、ガラス管1内部の不純ガスを形成する窒素や酸素等のイオンが電極4に衝突し、そのエネルギーによって電極4を形成する金属物質が飛散して

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ガラス管1の電極4近傍の内壁に付着することとなる。このため、ガラス管1のその付着部分が黒化してしまい、発光の有効長が短くなり輝度が低下する。この傾向は、ガラス管1が短くなるほど顕著に現われる。

【0007】また、ガラス管1に封入された水銀は、電極4がスパッタされると消耗してしまうため、冷陰極蛍光ランプの寿命が短くなる。

【0008】さらに、蛍光体層2が不純ガスを吸着するため、変色してしまい明るさが低下する。

【0009】本発明は、上記に鑑みてなされたものであり、その目的とするところは、電極でのスパッタを抑えて高輝度化、長寿命化を実現した冷陰極蛍光ランプを提供することにある。

【0010】

【課題を解決するための手段】上記目的を達成するため、請求項1記載の本発明に係る冷陰極蛍光ランプは、ガラス管の内壁に蛍光体層が形成され、前記ガラス管の内部に希ガスと水銀とが封入され、前記ガラス管の両端にリード線が気密に封着され、前記リード線の内端部それぞれに電極が接続された冷陰極蛍光ランプにおいて、前記電極の表面にゲッター層を圧着形成したことを特徴とする。

【0011】本発明にあっては、電極の表面にゲッター層を圧着形成するようにしたことで、ガラス管内の不純ガスがこのゲッター層に吸着されるので、不純ガスのイオンが電極に衝突することによって生じる金属物質の飛散を極力抑えることができ、ガラス管の電極近傍の内壁の黒化が低減されて高輝度化を図ることができる。

【0012】また、このように電極でのスパッタを抑えたことよって、点灯中における水銀の消耗量も低減されるので、冷陰極蛍光ランプの長寿命化を図ることができる。

【0013】さらに、ゲッター層での吸着によって蛍光体層に付着する不純ガスの量が低減されるので、蛍光体層の変色が軽減されて高輝度化を図ることができる。

【0014】請求項2記載の本発明は、請求項1記載の冷陰極蛍光ランプにおいて、前記電極は、略円筒のカップ形状であって、その外表面および内表面に前記ゲッター層を圧着形成したことを特徴とする。

【0015】請求項3記載の本発明は、請求項1又は2記載の冷陰極蛍光ランプにおいて、前記ゲッター層は、ジルコニウムとアルミニウムの金属化合物からなることを特徴とする。

【0016】

【発明の実施の形態】以下、本発明の実施の形態について図面を用いて説明する。

【0017】図1（a）は一実施の形態における冷陰極蛍光ランプの電極構成の軸方向断面図であり、同図（b）は径方向断面図である。直管型のガラス管1の内壁にはほぼ全長に渡って紫外線による刺激で発光する蛍

光体層２が形成され、ガラス管１の内部には希ガスと水銀とが封入される。

【００１８】ガラス管１の両端には電流を供給する供給用リード線３がそれぞれ軸方向に貫通して気密に封着される。その供給用リード線３の内端部は、略円筒カップ形状の電極４に挿入され、その挿入部位（溶接部５）に溶接固定されて電極４と電気的に接続される。

【００１９】そして、略円筒カップ形状の電極４の外表面および内表面にジルコニウム（Ｚｒ）とアルミニウム（Ａｌ）の金属化合物からなるゲッター層６が圧着形成される。

【００２０】この供給用リード線３の内端部、電極４、ゲッター層６により冷陰極が構成される。本冷陰極蛍光ランプは、一対の冷陰極をカップ開口部が対向するようにガラス管１の両端内部に配置した構造である。

【００２１】本冷陰極蛍光ランプでは、このように電極４の表面にゲッター層６を圧着形成することによって、ガラス管１内部の不純ガスをゲッター層６で吸着するようにしている。

【００２２】図２は、冷陰極蛍光ランプの点灯時間と水銀消耗量との関係を示すグラフである。横軸は点灯時間（Ｈｒ）、縦軸は水銀消耗量（ｍｇ）である。ランプ電流を５ｍＡで一定とし、上記のように構成した本冷陰極蛍光ランプと従来の冷陰極蛍光ランプとを比較した。

【００２３】同図に示されるように、本冷陰極蛍光ランプは、従来の冷陰極蛍光ランプに比べて水銀消耗量が約１／２程度まで低減することが確認された。

【００２４】図３は、冷陰極蛍光ランプの点灯時間と電極近傍における管壁黒化寸法との関係を示すグラフである。横軸は点灯時間（Ｈｒ）、縦軸は黒化寸法（ｍｍ）である。ランプ電流は５ｍＡで一定にした。ここで、管壁黒化寸法とは、ガラス管１の壁面で黒化した部分をランプ軸方向に測定した寸法である。

【００２５】同図に示されるように、本冷陰極蛍光ランプは、従来の冷陰極蛍光ランプに比べて管壁黒化寸法が約１．０～１．５ｍｍ程度短くなることが確認された。

【００２６】図４は、冷陰極蛍光ランプの点灯時間と輝度維持率との関係を示すグラフである。横軸は点灯時間（Ｈｒ）、縦軸は輝度維持率（％）である。ランプ電流は５ｍＡで一定とし、周囲温度は常温とした。

【００２７】同図に示されるように、本冷陰極蛍光ランプは、従来の冷陰極蛍光ランプに比べて輝度維持率が約２％～７％程度高いことが確認された。また、従来の冷陰極蛍光ランプは１２０００時間程度で水銀が消耗し点灯しなくなったが、本冷陰極蛍光ランプでは同じ条件下で１５０００時間以上も点灯しており、大幅な寿命の延長が確認された。

【００２８】図５は、ランプ電流と相対輝度との関係を示すグラフである。横軸はランプ電流（ｍＡ）、縦軸は相対輝度（％）である。周囲温度は２５℃で一定とした。

【００２９】同図に示されるように、本冷陰極蛍光ランプでは蛍光体層２の変色が少ないので、従来の冷陰極蛍光ランプに比べて相対輝度が約３％程度高いことが確認された。

【００３０】したがって、本実施の形態によれば、略円筒カップ形状の電極４の外表面および内表面にＺｒとＡｌの金属化合物からなるゲッター層６を圧着形成するようにしたことで、ガラス管１内部の不純ガスがこのゲッター層６に吸着されるので、不純ガスのイオンが電極４に衝突することによって生じる電極４からの金属物質の飛散を極力抑えることができ、ガラス管１の電極４近傍の内壁の黒化が低減されて有効発光長が長くなり高輝度化を図ることができる。

【００３１】また、このように電極４でのスパッタを抑えたことよって、点灯中における水銀の消耗量も低減されるので、冷陰極蛍光ランプの長寿命化を図ることができる。

【００３２】さらに、ゲッター層での吸着によって蛍光体層２に付着する不純ガスの量が低減されるので、蛍光体層２の変色が軽減されて高輝度化を図ることができる。

【００３３】なお、本実施の形態においては、略円筒のカップ形状の電極４にゲッター層６を圧着形成するようにしたが、電極４の形状はこれに限られるものではない。例えば、図６に示すように略円筒のカップ形状であってその表面に凹凸のある電極を用いるようにしてもよい。また、円筒形状に限らず、円柱形状の電極を用いるようにしてもよい。ただし、円柱形状の場合は、内表面がないので外表面にだけゲッター層を圧着形成するようにする。

【００３４】また、本実施の形態においては、直管型のガラス管１を用いることとしたが、これに限られるものではない。例えば、Ｕ字管、Ｗ字管、２重管、その他の形状のガラス管を用いるようにしてもよい。

【００３５】

【発明の効果】以上説明したように、本発明に係る冷陰極蛍光ランプによれば、電極の表面にゲッター層を圧着形成するようにしたことで、ガラス管内の不純ガスがこのゲッター層に吸着されるので、不純ガスのイオンが電極に衝突することによって生じる電極からの金属物質の飛散を極力抑えることができ、ガラス管の電極近傍の内壁の黒化が低減されて高輝度化を図ることができる。

【００３６】また、このように電極でのスパッタを抑えたことよって、点灯中における水銀の消耗量が低減されるので、冷陰極蛍光ランプの長寿命化を図ることができる。

【００３７】さらに、ゲッター層での吸着によって蛍光体層に付着する不純ガスの量が低減されるので、蛍光体層の変色が軽減されて高輝度化を図ることができる。

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【図面の簡単な説明】

【図１】同図（ａ）は一実施の形態における冷陰極蛍光ランプの電極構成の軸方向断面図であり、同図（ｂ）は径方向断面図である。

【図２】冷陰極蛍光ランプの点灯時間と水銀消耗量との関係を示すグラフである。

【図３】冷陰極蛍光ランプの点灯時間と電極近傍における管壁黒化寸法との関係を示すグラフである。

【図４】冷陰極蛍光ランプの点灯時間と輝度維持率との関係を示すグラフである。

【図５】ランプ電流と相対輝度との関係を示すグラフである。

【図６】同図（ａ）は別の冷陰極蛍光ランプの電極構成

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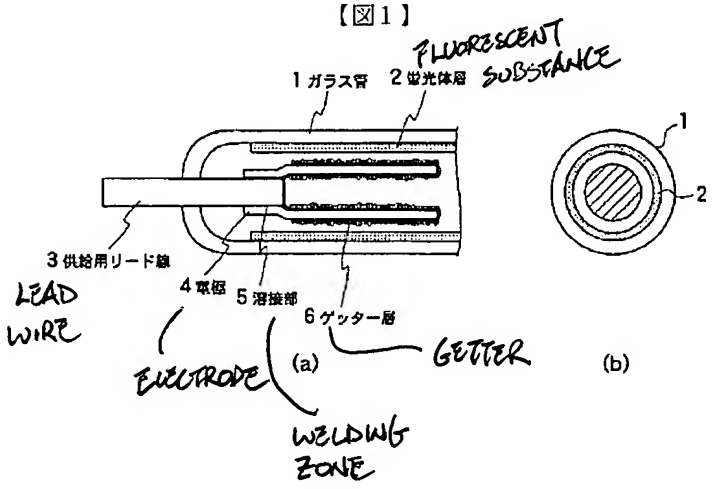
の軸方向断面図であり、同図（ｂ）は径方向断面図である。

【図７】同図（ａ）は従来の冷陰極蛍光ランプの電極構成の軸方向断面図であり、同図（ｂ）は径方向断面図である。

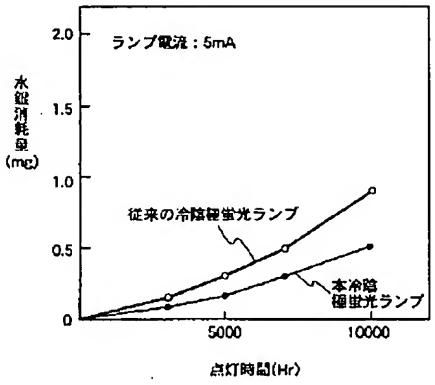
【符号の説明】

1　ガラス管
2　蛍光体層
3　リード線
4　電極
5　溶接部
6　ゲッター層

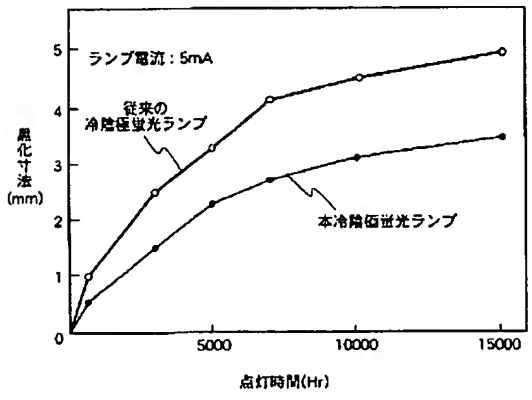
【図１】



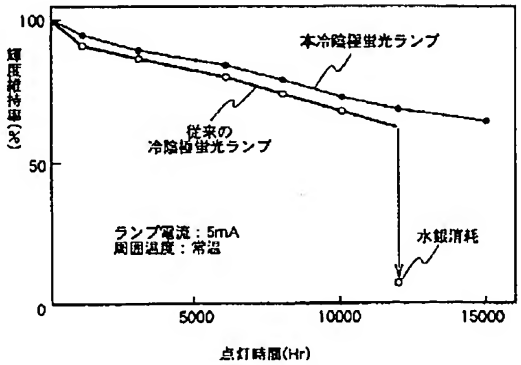
【図２】



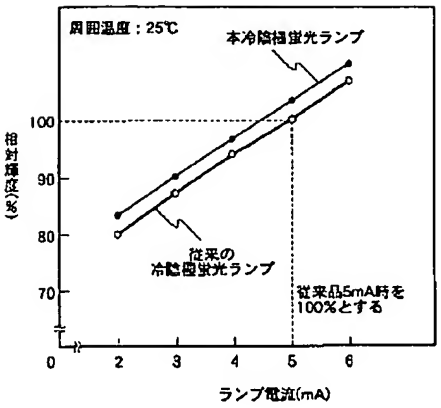
【図３】



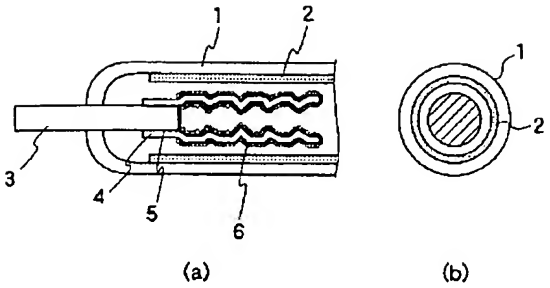
【図４】



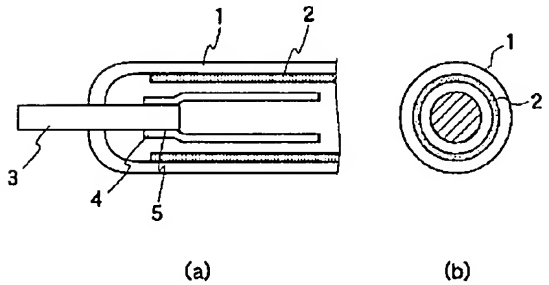
【図5】



【図6】



【図7】(PRIOR ART)



* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] Especially this invention relates to the technique which raises brightness and a life about the cold cathode fluorescent lamp of a capillary mold.
[0002]
[Description of the Prior Art] Generally a cold cathode fluorescent lamp is used as the back light light source of liquid crystal displays, such as a personal computer, a word processor, and a monitor. In connection with thin-shape-izing of the liquid crystal display in a commercial-scene trend in recent years, a raise in brightness, and reinforcement, capillary-izing much more also about the cold cathode fluorescent lamp built into this, a raise in brightness, and reinforcement are desired.
[0003] Drawing 7 (a) is the axial sectional view of the electrode configuration of the conventional cold cathode fluorescent lamp, and this drawing (b) is the direction sectional view of a path. The fluorescent substance layer 2 which emits light by the stimulus by ultraviolet rays over an overall length mostly is formed in the wall of the glass tube 1 of a straight pipe mold, and rare gas and mercury are enclosed with the interior of a glass tube 1. Mercury is for attaining reinforcement of a cold cathode fluorescent lamp.
[0004] The lead wire 3 for supply (lead-in wire) which supplies a current to the both ends of a glass tube 1 penetrates to shaft orientations, and sealing is airtightly carried out. The toe of the lead wire 3 for supply is inserted in the electrode 4 of the cup configuration of an approximate circle cylinder, and welding immobilization only of the insertion section is carried out at (a weld zone 5), and it is electrically connected with an electrode 4.
[0005] Cold cathode is constituted by the toe of the lead wire 3 for supply, and the electrode 4. This cold cathode fluorescent lamp is structure which has arranged the cold cathode of a pair inside the both ends of a glass tube 1 so that that cup opening may counter.
[0006]
[Problem(s) to be Solved by the Invention] In the cold cathode fluorescent lamp constituted as mentioned above, when the spatter of the electrode 4 is carried out in a lamp lighting process, the metal matter in which ion which forms the impure gas of the glass tube 1 interior, such as nitrogen and oxygen, collides with an electrode 4, and forms an electrode 4 with the energy will disperse, and it will adhere to an about four electrode [of a glass tube 1] wall. For this reason, that adhesion part of a glass tube 1 carries out melanism, the effective length of luminescence becomes short, and brightness falls. This inclination appears so notably that a glass tube 1 becomes short.
[0007] Moreover, if the spatter of the electrode 4 is carried out, in order to exhaust the mercury enclosed with the glass tube 1, the life of a cold cathode fluorescent lamp becomes short.
[0008] Furthermore, in order that the fluorescent substance layer 2 may adsorb impure gas, it discolors and brightness falls.
[0009] This invention is made in view of the above, and the place made into the purpose is to offer the cold cathode fluorescent lamp which suppressed the spatter in an electrode and realized raise in

brightness, and reinforcement.

[0010]

[Means for Solving the Problem] It is characterized by carrying out sticking-by-pressure formation of the getter layer on the front face of said electrode in the cold cathode fluorescent lamp by which, as for the cold cathode fluorescent lamp which starts this invention according to claim 1 in order to attain the above-mentioned purpose, the fluorescent substance layer was formed in the wall of a glass tube, rare gas and mercury were enclosed with the interior of said glass tube, sealing of the lead wire was airtightly carried out to the both ends of said glass tube, and the electrode was connected to each toe of said lead wire.

[0011] If it is in this invention, since it is having been made to carry out sticking-by-pressure formation of the getter layer on the surface of the electrode and this getter layer is adsorbed in the impure gas in a glass tube, scattering of the metal matter produced when the ion of impure gas collides with an electrode can be suppressed as much as possible, the melanism of the wall near the electrode of a glass tube is reduced, and high brightness-ization can be attained.

[0012] moreover, the thing for which the spatter in an electrode was suppressed in this way -- since the amount of consumption of the mercury under lighting is also reduced, reinforcement of a cold cathode fluorescent lamp can be attained.

[0013] Furthermore, since the amount of the impure gas which adheres to a fluorescent substance layer by adsorption in a getter layer is reduced, discoloration of a fluorescent substance layer is mitigated and high brightness-ization can be attained.

[0014] In a cold cathode fluorescent lamp according to claim 1, said electrode is the cup configuration of an approximate circle cylinder, and this invention according to claim 2 is characterized by carrying out sticking-by-pressure formation of said getter layer at the outside surface and internal surface.

[0015] This invention according to claim 3 is characterized by said getter layer consisting of metallic compounds of a zirconium and aluminum in a cold cathode fluorescent lamp according to claim 1 or 2.

[0016]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained using a drawing.

[0017] Drawing 1 (a) is the axial sectional view of the electrode configuration of the cold cathode fluorescent lamp in the gestalt of 1 operation, and this drawing (b) is the direction sectional view of a path. The fluorescent substance layer 2 which emits light by the stimulus by ultraviolet rays over an overall length mostly is formed in the wall of the glass tube 1 of a straight pipe mold, and rare gas and mercury are enclosed with the interior of a glass tube 1.

[0018] The lead wire 3 for supply which supplies a current to the both ends of a glass tube 1 penetrates to shaft orientations, respectively, and sealing is airtightly carried out. The toe of the lead wire 3 for supply is inserted in the electrode 4 of an approximate circle cylinder cup configuration, and welding immobilization only of the insertion section is carried out at (a weld zone 5), and it is electrically connected with an electrode 4.

[0019] And sticking-by-pressure formation of the getter layer 6 which becomes the outside surface and internal surface of an electrode 4 of an approximate circle cylinder cup configuration from the metallic compounds of a zirconium (Zr) and aluminum (aluminum) is carried out.

[0020] Cold cathode is constituted by the toe of this lead wire 3 for supply, an electrode 4, and the getter layer 6. This cold cathode fluorescent lamp is structure which has arranged the cold cathode of a pair inside the both ends of a glass tube 1 so that cup opening may counter.

[0021] He is trying to adsorb the impure gas of the glass tube 1 interior in the getter layer 6 on the front face of an electrode 4 in this way with this cold cathode fluorescent lamp by carrying out sticking-by-pressure formation of the getter layer 6.

[0022] Drawing 2 is a graph which shows the relation between the lighting time amount of a cold cathode fluorescent lamp, and the amount of mercury consumption. An axis of abscissa is lighting time amount (Hr), and an axis of ordinate is the amount of mercury consumption (mg). This cold cathode fluorescent lamp which set the lamp current constant and constituted it from 5mA as mentioned above

was compared with the conventional cold cathode fluorescent lamp.
[0023] As shown in this drawing, it was checked that the amount of mercury consumption reduces this cold cathode fluorescent lamp to about about 1 / 2 compared with the conventional cold cathode fluorescent lamp.
[0024] a tube wall [drawing 3 / near the cold cathode fluorescent lamp lighting time amount and near the electrode] -- melanism -- it is the graph which shows relation with a dimension. an axis of abscissa -- lighting time amount (Hr) and an axis of ordinate -- melanism -- it is a dimension (mm). The lamp current was fixed by 5mA. here -- a tube wall -- melanism -- a dimension is a dimension which measured the part which carried out melanism on the wall surface of a glass tube 1 to lamp shaft orientations.
[0025] it is shown in this drawing -- as -- this cold cathode fluorescent lamp -- the conventional cold cathode fluorescent lamp -- comparing -- a tube wall -- melanism -- it was checked that a dimension becomes short about about 1.0-1.5mm.
[0026] Drawing 4 is a graph which shows the relation between the lighting time amount of a cold cathode fluorescent lamp, and a brightness maintenance factor. An axis of abscissa is lighting time amount (Hr), and an axis of ordinate is a brightness maintenance factor (%). The lamp current presupposed that it is fixed by 5mA, and ambient temperature was made into ordinary temperature.
[0027] As shown in this drawing, it was checked that this cold cathode fluorescent lamp has a high brightness maintenance factor about 2% to about 7% compared with the conventional cold cathode fluorescent lamp. Moreover, although mercury stopped having exhausted and turned on the conventional cold cathode fluorescent lamp in about 12000 hours, in this cold cathode fluorescent lamp, the light was switched on under the same conditions for 15000 hours or more, and extension of a large life was checked.
[0028] Drawing 5 is a graph which shows the relation between a lamp current and relative luminance. An axis of abscissa is a lamp current (mA), and an axis of ordinate is relative luminance (%). Ambient temperature presupposed that it is fixed at 25 degrees C.
[0029] As shown in this drawing, since there was little discoloration of the fluorescent substance layer 2, with this cold cathode fluorescent lamp, it was checked compared with the conventional cold cathode fluorescent lamp that relative luminance is high about 3%.
[0030] According to the gestalt of this operation, the getter layer 6 which becomes the outside surface and internal surface of an electrode 4 of an approximate circle cylinder cup configuration from the metallic compounds of Zr and aluminum by therefore, the thing which was made to do sticking-by-pressure formation Since this getter layer 6 is adsorbed in the impure gas of the glass tube 1 interior, scattering of the metal matter from the electrode 4 produced when the ion of impure gas collides with an electrode 4 can be suppressed as much as possible. The melanism of an about four electrode [of a glass tube 1] wall is reduced, and effective luminescence length becomes long and can attain high brightness-ization.
[0031] moreover, the thing for which the spatter in an electrode 4 was suppressed in this way -- since the amount of consumption of the mercury under lighting is also reduced, reinforcement of a cold cathode fluorescent lamp can be attained.
[0032] Furthermore, since the amount of the impure gas which adheres to the fluorescent substance layer 2 by adsorption in a getter layer is reduced, discoloration of the fluorescent substance layer 2 is mitigated and high brightness-ization can be attained.
[0033] In addition, in the gestalt of this operation, although it was made to carry out sticking-by-pressure formation of the getter layer 6 at the electrode 4 of the cup configuration of an approximate circle cylinder, the configuration of an electrode 4 is not restricted to this. For example, you may make it use the electrode which is the cup configuration of an approximate circle cylinder and has irregularity in the front face as shown in drawing 6 . Moreover, you may make it use the electrode of the shape not only of the shape of a cylindrical shape but a cylindrical shape. However, since there is no internal surface, it is made to carry out sticking-by-pressure formation of the getter layer only at an outside surface in the case of-like [cylindrical shape].

[0034] Moreover, in the gestalt of this operation, although the glass tube 1 of a straight pipe mold is used, it is not restricted to this. For example, you may make it use a U tube, W character tubing, double tubing, and the glass tube of other configurations.
[0035]
[Effect of the Invention] According to the cold cathode fluorescent lamp concerning this invention, as explained above, since this getter layer is adsorbed in the impure gas in a glass tube, scattering of the metal matter from the electrode produced when the ion of impure gas collides with an electrode can be suppressed as much as possible, the melanism of the wall near the electrode of a glass tube is reduced, and high brightness-ization can be attained, because it was made to carry out sticking-by-pressure formation of the getter layer on the surface of the electrode.
[0036] moreover, the thing for which the spatter in an electrode was suppressed in this way -- since the amount of consumption of the mercury under lighting is reduced, reinforcement of a cold cathode fluorescent lamp can be attained.
[0037] Furthermore, since the amount of the impure gas which adheres to a fluorescent substance layer by adsorption in a getter layer is reduced, discoloration of a fluorescent substance layer is mitigated and high brightness-ization can be attained.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

MEANS

[Means for Solving the Problem] It is characterized by carrying out sticking-by-pressure formation of the getter layer on the front face of said electrode in the cold cathode fluorescent lamp by which, as for the cold cathode fluorescent lamp which starts this invention according to claim 1 in order to attain the above-mentioned purpose, the fluorescent substance layer was formed in the wall of a glass tube, rare gas and mercury were enclosed with the interior of said glass tube, sealing of the lead wire was airtightly carried out to the both ends of said glass tube, and the electrode was connected to each toe of said lead wire.
[0011] If it is in this invention, since it is having been made to carry out sticking-by-pressure formation of the getter layer on the surface of the electrode and this getter layer is adsorbed in the impure gas in a glass tube, scattering of the metal matter produced when the ion of impure gas collides with an electrode can be suppressed as much as possible, the melanism of the wall near the electrode of a glass tube is reduced, and high brightness-ization can be attained.
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[0013] Furthermore, since the amount of the impure gas which adheres to a fluorescent substance layer by adsorption in a getter layer is reduced, discoloration of a fluorescent substance layer is mitigated and high brightness-ization can be attained.
[0014] In a cold cathode fluorescent lamp according to claim 1, said electrode is the cup configuration of an approximate circle cylinder, and this invention according to claim 2 is characterized by carrying out sticking-by-pressure formation of said getter layer at the outside surface and internal surface.
[0015] This invention according to claim 3 is characterized by said getter layer consisting of metallic compounds of a zirconium and aluminum in a cold cathode fluorescent lamp according to claim 1 or 2.
[0016]
[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained using a drawing.
[0017] Drawing 1 (a) is the axial sectional view of the electrode configuration of the cold cathode fluorescent lamp in the gestalt of 1 operation, and this drawing (b) is the direction sectional view of a path. The fluorescent substance layer 2 which emits light by the stimulus by ultraviolet rays over an overall length mostly is formed in the wall of the glass tube 1 of a straight pipe mold, and rare gas and mercury are enclosed with the interior of a glass tube 1.
[0018] The lead wire 3 for supply which supplies a current to the both ends of a glass tube 1 penetrates to shaft orientations, respectively, and sealing is airtightly carried out. The toe of the lead wire 3 for supply is inserted in the electrode 4 of an approximate circle cylinder cup configuration, and welding immobilization only of the insertion section is carried out at (a weld zone 5), and it is electrically connected with an electrode 4.
[0019] And sticking-by-pressure formation of the getter layer 6 which becomes the outside surface and internal surface of an electrode 4 of an approximate circle cylinder cup configuration from the metallic

compounds of a zirconium (Zr) and aluminum (aluminum) is carried out.
[0020] Cold cathode is constituted by the toe of this lead wire 3 for supply, an electrode 4, and the getter layer 6. This cold cathode fluorescent lamp is structure which has arranged the cold cathode of a pair inside the both ends of a glass tube 1 so that cup opening may counter.
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[0030] According to the gestalt of this operation, the getter layer 6 which becomes the outside surface and internal surface of an electrode 4 of an approximate circle cylinder cup configuration from the metallic compounds of Zr and aluminum by therefore, the thing which was made to do sticking-by-pressure formation Since this getter layer 6 is adsorbed in the impure gas of the glass tube 1 interior, scattering of the metal matter from the electrode 4 produced when the ion of impure gas collides with an electrode 4 can be suppressed as much as possible. The melanism of an about four electrode [of a glass tube 1] wall is reduced, and effective luminescence length becomes long and can attain high brightness-ization.
[0031] moreover, the thing for which the spatter in an electrode 4 was suppressed in this way -- since the amount of consumption of the mercury under lighting is also reduced, reinforcement of a cold cathode fluorescent lamp can be attained.

[0032] Furthermore, since the amount of the impure gas which adheres to the fluorescent substance layer 2 by adsorption in a getter layer is reduced, discoloration of the fluorescent substance layer 2 is mitigated and high brightness-ization can be attained.
[0033] In addition, in the gestalt of this operation, although it was made to carry out sticking-by-pressure formation of the getter layer 6 at the electrode 4 of the cup configuration of an approximate circle cylinder, the configuration of an electrode 4 is not restricted to this. For example, you may make it use the electrode which is the cup configuration of an approximate circle cylinder and has irregularity in the front face as shown in drawing 6 . Moreover, you may make it use the electrode of the shape not only of the shape of a cylindrical shape but a cylindrical shape. However, since there is no internal surface, it is made to carry out sticking-by-pressure formation of the getter layer only at an outside surface in the case of-like [cylindrical shape].
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